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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,669	02/13/2002	Kevin E. Boyle	TRW(RG)5832	2678

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EXAMINER

YEAGLEY, DANIEL S


ART UNIT	PAPER NUMBER
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3611

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

06

 Office Action Summary	Application No.	Applicant(s)	
	10/075,669	BOYLE ET AL.	
	Examiner	Art Unit	
	Daniel Yeagley	3611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-44 is/are pending in the application.
- 4a) Of the above claim(s) 37 and 38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-36 and 39-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/20/05 has been entered.

Election/Restrictions

2. Applicant's original election of Species II in Paper No. 5 was previously acknowledged but because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election was treated as an election without traverse (MPEP § 818.03(a)). Applicant's subsequent election of newly submitted claims 31 - 36, 39 - 49 and claims 52 - 57 drawn to elected species II was also previously acknowledged and was again treated as an election without traverse and henceforth; claims 37, 38, 50 and 51 were withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species. Therefore pending claims 37 and 38 of the current amendment are still withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 31 – 36, 39 – 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmura et al '494 in view of Cartwright '742.

Ohmura shows a steering system having steerable rear wheels (figure 1), wherein the steering system comprises an axle (housing 40) having end portions that support rear wheels 6 with an intermediate portion of the axle having a defined chamber (figure 2) that supports a steering member 30 that is free of rack teeth that moves axially relative to the housing by a ball nut 34 that is associated with a screw thread portion 84 (column 3, line 24-35, column 5, line 11-13), an electric motor that is outside the chamber and connected with the axle by at least one drive member 88 extending through an opening in the axle housing spaced from an intermediate portion of the axle and connected between the motor and the ball nut for rotating the ball nut to drive the steering member axially upon actuation of the motor as shown in figure 2 wherein the electric motor includes a motor control circuitry operative to cause a generation readable as being back EMF in an electric motor 32 to resist movement of the steering member toward a straight ahead position (column 3-5, line 53-10), and further includes a single spring assembly 98 disposed in the chamber of axle 40 which biases the steering member toward a straight ahead position that includes fixed stops 100,102 disposed in the chamber and movable stops 90,92 that are movable relative to the fixed stops (column 5) and includes a locking member 46 capable of locking the steering member in a straight ahead position (column 6, line 17-21) but lacked the takeoff assembly and steering linkage as claimed and failed to show the axle having end portions suspended by springs as is commonly known in the art.

Cartwright discloses a steering system comprising an axle housing supporting wheels (figure 2), wherein an intermediate portion of the axle defines a chamber (figure 3) supporting a ball nut 86 fixed axially therein and associated with a screw thread portion 84 of an elongated steering member 50 supported in the chamber of the axle similar to the steering system of Ohmura, and wherein the steering member of Cartwright steering system further shows the art of utilizing a steering system incorporating a takeoff assembly connected to the steering member with a portion projecting from an opening in the axle housing (figure 3) wherein a piston member is connected with the steering member and a portion of the takeoff assembly projects radially from an intermediate portion of the axle housing with a first and second steering linkage connected with the projecting portion for transmitting movement of the takeoff assembly to first and second wheels as claimed but failed to show the axle having end portions suspended by springs as is commonly known in the art

Ikeda discloses a steering system comprising an axle supporting wheels (figure 2), which clearly show end portions of a steering axle being suspended by springs 13 as claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the rear wheel steering system of Ohmura with a spring suspension means such as suggested by the spring suspended steering axle of Ikeda in order to improve the drivers comfort during driving which is old and well known in the suspension art, and would have been obvious to have further modified the spring suspended steering system of Ohmura as modified by Ikeda with an additional or alternative steering apparatus that incorporates a known piston type takeoff assembly with center extending steering linkage that extend from an opening in the intermediate portion of an axle chamber; such like that shown by Cartwright in order to

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further enhance the steering system of Ohmura by utilizing a simple takeoff assembly with steering linkage that pivotally connect to steerable wheels as is commonly known in the steering system art to further enhance the steering apparatus in order to improve the turning effect of the steerable wheels as suggested by Cartwright (column 1).

5. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmura et al; '494 as modified by Cartwright '742 in further modified by Ikeda et al '578 in further view of Jung et al '774.

Ohmura as modified by Ikeda as further modified by Cartwright as stated above disclose a steering system having steerable rear wheels with a steering member and ball nut supported in a chamber of an axle, which includes at least one drive member 88 extending through an opening in the axle housing connecting the ball nut with an electric motor connected outside the chamber of the axle but failed to show the drive member being a belt that extends part way around the ball nut and part way around an output member connected with the electric motor as claimed.

Jung discloses a rear wheel steering system that utilizes a drive belt that extends part way around the ball nut and part way around an output member connected with the electric motor as claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the rear steering system of Ohmura as modified by the takeoff assembly and steering linkages of Cartwright steering system as modified by the spring suspended axle of Ikeda with an alternative type drive means that incorporates a drive belt in place of the gear drive member of Ohmura motor driven steering system simply as an alternative

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drive means dependent upon users preference to drive the ball nut of the steering system of Ohmura, as drive belts are old and well known alternative drive means in the art.

Response to Arguments

6. Applicant's arguments filed 1/20/05 have been fully considered but they are not persuasive. Ohmura clearly discloses pivotally connected steerable rear wheels having a steering axle comprising a chamber with a steering member and ball nut disposed in the axle chamber and having an electric motor connected to the axle by a drive means and as modified by Cartwright steering system which clearly disclose the features of a steering system utilizing a take off assembly with steerable wheels pivotally connected to steering linkage as stated above as broadly claimed and is still considered readable on the instant claims as now claimed.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Yeagley whose telephone number is **703 - 305 - 0838**. The examiner can normally be reached on Mon. - Fri; first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley D Morris can be reached on **703 - 308 - 0629**. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

In the near future; because of a pending move of the examining corps to a new campus, the examiner and SPE telephone numbers will change to **571 - 272 - 6655** and **571 - 272 - 6651**; respectively.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.Y.



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